李明东

个人主页: mingdong-li.github.io　　Google Scholar

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教育经历

香港科技大学　　　　　　　　　　　　　　　　　　　　　　　*2021.09 - 2025.07 (expected)*
博士在读，PhD in Individualized Interdisciplinary Program (Robotics and Autonomous System)
Computational Cognitive Engineering Lab
导师: Prof. Yiwen WANG, Prof. Qifeng CHEN (co-supervision)

海德堡大学　　　　　　　　　　　　　　　　　　　　　　　　　　　*2024.12 - 2025.02*
访问学者, BMBF Research Group at Interdisciplinary Center for Scientific Computing
Dynamical Systems and Artificial Intelligence Lab
Supervisor: Prof. Zahra Monfared

浙江大学　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*2018-2021*
硕士，机械设计及理论
流体动力与机电系统国家重点实验室
导师: 冯毅雄教授 (谭建荣院士团队)

同济大学　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*2013-2018*
学士，机械设计制造及其自动化
中德机械工程创新试验区 (荣誉班级)

研究经历及兴趣

脑机接口，NeuroAI，类脑智能，认知分析，可穿戴设备

当前工作

1. **Mingdong Li**, Zhiwei Song, Shuhang Chen, Xiang Zhang, Yiwen Wang*. Dynamic Functional Neural Connectivity Inference for Multi-Task Neuroprosthetic Control in a Point Process Filter, ***IEEE Transactions on Biomedical Engineering***. *(在审)*

2. Shenghui Wu, Zhiwei Song, Jieyuan Tan, **Mingdong Li**, Xiang Zhang, Yifan Huang, Shuhang Chen, Xiang Shen, Ziyi Wang, Dario Farina, Jose Principe, Yiwen Wang*. Re-establishing neural functional connectivity with a generative spike prediction model using behavioral reinforcement, ***Nature Computational Science***. *(返修中)*

3. Zhiwei Song, Xiang Zhang, **Mingdong Li**, Jieyuan Tan, Yiwen Wang*. An Online Knowledge Transfer Framework for Task Learning in Brain-Machine Interfaces, ***IEEE Transactions on Neural Systems and Rehabilitation Engineering***. *(返修中)*

论文发表（期刊）

1. **Mingdong Li**, Shuhang Chen†, Xiang Zhang, Yiwen Wang*. Neural Correlation Integrated Adaptive Point Process Filtering on Population Spike Trains, 2025, ***IEEE Transactions on Neural Systems and Rehabilitation Engineering*** (IF=4.8). (†: co-first author)

2. **Mingdong Li**, Shanhe Lou*, Hao Zheng, Yixiong Feng, Yicong Gao, Siyuan Zeng, Jianrong Tan. A Cognitive Analysis-based Key Concepts Derivation Approach for Product Design, 2024, ***Expert Systems With Applications*** (IF=7.5).

3. **Mingdong Li**, Shanhe Lou*, Yicong Gao, Hao Zheng, Bingtao Hu, Jianrong Tan. A Cerebellar Operant Conditioning-inspired Constraint Satisfaction Approach for Product Design Concept Generation, 2023, ***International Journal of Production Research*** (IF=7.0).

4. Xuanyu Wu, Zhaoxi Hong*, Yixiong Feng, **Mingdong Li**, Shanhe Lou, Jianrong Tan. A Semantic Analysis-driven Customer Requirements Mining Method for Product Conceptual Design, 2022, *Scientific Reports (IF=3.8)*.

5. Yixiong Feng, **Mingdong Li**, Shanhe Lou*, Yicong Gao, Jianrong Tan. A Digital Twin-Driven Method for Product Performance Evaluation Based on Intelligent Psycho-Physiological Analysis, 2021, *ASME Journal of Computing and Information Science in Engineering (IF=2.6)*.

论文发表（会议/专利）

1. **Mingdong Li**, Mingyi Wang, Yiwen Wang*. An Adaptive Superposition Point Process Model with Neuronal Encoding Engagement Identification, *2024 46th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC) (Oral)*.

2. Zixu Wang, Shuhang Chen†, **Mingdong Li**, Yiwen Wang*. Tracking Dynamic Conditional Neural Correlation during Task Learning, *2024 46th EMBC (†: co-first author. Oral)*.

3. **Mingdong Li**, Jieyuan Tan, Zhiwei Song, Yiwen Wang*. Modeling Neural Population Dynamics in a Point Process Filter for Neuroprosthetics Control, *Annual Conference of International Association of Neurorestoratology (IANR) 2024 (Abstract，Poster)*.

4. **Mingdong Li**, Shuhang Chen, Zhijia Zhao, Yiwen Wang*. Tracking the Dynamic Functional Neural Connectivity via Conjugate Gradient Optimization, *2023 45th EMBC (Oral)*.

5. **Mingdong Li**, Shuhang Chen, Xi Liu, Zhiwei Song, Yiwen Wang*. Modeling Neural Connectivity in a Point-Process Analogue of Kalman Filter, *2022 44th EMBC (Poster)*.

6. 冯毅雄, **李明东**, 高一聪. CN110090818B, 发明专利授权,2020

7. 李梦茹, 张引强, 徐楠婕, **李明东**, 刘铄. CN106127958B, 发明专利授权,2018

项目经历

1. 大鼠电极植入手术负责人, Computational Cognitive Engineering Lab   *2023.9-2024.9*
   - 组织开展大鼠 M1-mPFC 脑区微丝电极植入手术 30 余场
   - 针对课题组新生手术教学

2. 大鼠行为训练负责人, Computational Cognitive Engineering Lab   *2022.9-2023.9*
   - 组织开展大鼠压杆行为训练，累计记录超 130 天
   - 行为数据与神经信号采集设备的维护、更新

3. IMU + Matlab Mobile 步数测量与运动轨迹重建   *2018*

4. 国家自然科学基金面上项目：支持设计认知的机械产品创新设计理论、方法及应用研究.   参与

5. 国家重点研发项目课题：复杂产品全生命周期价值链协同平台研发.   参与

实习经历

1. Anker Innovations Co., Ltd (安克创新)，2023 实验室，算法实习生   *2025.04-至今*
   - 机器人触觉传感器技术分析、市场洞察
   - 具身智能人才寻源 Agent 开发
   - Mujoco 灵巧手仿真

个人荣誉及奖项

1. DAAD AInet fellowship (AI4Science), 德国学术交流中心   *2024*
2. NextGen Scholar Award, IEEE Annual International Conference of EMBS   *2024*
3. 浙江大学研究生毕业学年奖学金 (前 1%)   *2021*

4. 2019 之江杯全球人工智能竞赛-多目标跟踪赛道，优胜奖（6-12 名），之江实验室   *2019*
5. 第七届全国大学生机械设计创新竞赛，一等奖   2016
6. 同济大学优秀学生奖学金   *2013-2018*

学术服务

1. 审稿人：EMBC, ISBI, NER, TIV

2. 会议组委会, 4th International Workshop on Neural Engineering & Rehabilitation   *2023.08*

3. 会议组委会, 3rd International Workshop on Neural Engineering & Rehabilitation   *2022.05*

教学与指导

1. 课程助教, EMIA4110 Practical Machine Learning   *2024 春季学期*

2. 课程助教, ELEC4130 Machine Learning on Images   *2023 春季学期*

3. 学生指导：动物神经信号的点过程建模分析 (HKUST)   *2024.6-2024.9*
   - 胡天翊，中国科学技术大学本科生，将于 2025 入学 HKUST

4. 学生指导：大鼠 M1-mPFC 脑区微丝电极植入手术教学 (HKUST)   *2023.9-2024.9*
   - 邱士乘，HKUST MPhil student

5. 学生指导：产品设计认知实验，语言与 EEG 数据处理，论文写作 (浙江大学)   *2020.9-2022.9*
   - 吴轩宇，浙江大学博士生

个人技能

1. **编程**: Python/Matlab/Pytorch toolbox
2. **产品设计建模**：AutoDesk Inventor/Solidworks/AutoCAD/ANSYS
3. **语言**: 中文（母语），英语（熟练），德语（一般）

国际合作

Prof. Jose Principe, University of Florida
Prof. Zahra Monfared, Heidelberg University
Prof. Camilo Libedinsky, National University of Singapore